

Coffee and ovarian cancer

July 28, 1982

Sir,

Trichopoulos and his co-workers recently reported observing an association between consumption of coffee and risk of ovarian cancer (Trichopoulos et al., 1981). We therefore examined data on coffee consumption that two of us (L. McGowan, L.P. Leshner) collected as part of a case-control interview study of ovarian cancer (McGowan et al., 1979). The cases were 197 women with pathologically confirmed primary ovarian cancers of the epithelial type treated in participating hospitals in the Washington, D.C., area. The controls were 197 women treated at the same hospitals for conditions other than gynecologic, psychiatric, or malignant diseases or pregnancy. The controls were frequency-matched to cases for age, race and hospital. The interviewers asked respondents questions about reproductive and sexual history, medical history, drug usage and other exposures, including coffee consumption.

Because coffee consumption patterns might be atypical among hospital patients (Silverman et al., 1982), we removed 10 controls who were hospitalized for conditions that might necessitate alterations in the diet. We eliminated these controls without knowledge of their coffee-drinking habits. We compared the remaining 187 controls to 158 cases (39 cases had been interviewed before the questions about coffee drinking were added to the questionnaire).

The reported coffee habits of cases and controls are shown in Table 1. Maximum likelihood estimates of the relative risk are given, adjusted for gravidity, smoking and age (Gart, 1972). Altogether, women who drank any coffee were apparently at greater risk than non-drinkers (est. relative risk = 1.3; 95% confidence interval = 0.8-2.2), but those who drank most heavily were not at greatest risk. The one-tailed p-value of the test for trend (Mantel, 1963) was 0.115. The relative risk among the 114 women who smoked were estimated as 0.8, 1.7 and 1.1 for the women who drank less than 2 cupfuls, 2-3, and 4 or more, respectively. The corresponding relative risks among the non-smokers were estimated as 1.0, 1.9 and 1.5.

Our data thus indicate an apparently greater risk of ovarian cancer among women who drink coffee than among those who do not, but they do not indicate a relationship between dose and risk. We have considered the possible impact of bias in selection or observation, of confounding, and of chance on our findings. As the p-value indicates, chance variation may have been the source of the observed elevation. We attempted to eliminate possible bias in selection by restricting the control group to patients treated for conditions that were neither positively nor negatively correlated with coffee drinking (Cole 1979). It is possible that bias operated in data collection, e.g., if cases overstated exposures, but this seems unlikely. (For instance, cases reported less cigarette smoking than did controls). The estimates given are adjusted for age, gravidity and cigarette smoking, but it is possible that they are confounded by the effects of other factors.

The types of coffee and the methods of preparation used in Greece may differ from those in the US, in important ways, so our data may not be directly comparable to those of Trichopoulos et al. Data from other studies would help to reveal whether there is an association and, if so, whether it is causal.

Yours sincerely,

Patricia Hartge, M.Sc.
Environmental Studies Section
Environmental Epidemiology Branch
National Cancer Institute

Linda P. Leshner, M.H.S.
Division of Gynecologic Oncology
Dept. of Obstetrics and Gynecology
George Washington University Medical Center

Larry McGowan, M.D.
Division of Gynecologic Oncology
Dept. of Obstetrics and Gynecology
George Washington University Medical Center

Robert Hoover, M.D.
Environmental Studies Section
Environmental Epidemiology Branch
National Cancer Institute

TABLE 1—ESTIMATED RELATIVE RISK OF OVARIAN CANCER,
ACCORDING TO CURRENT COFFEE CONSUMPTION

	Coffee (cups per day)			
	None	<2	2-3	≥4
Cases	39	29	52	38
Controls	57	38	45	47
RR ¹	2.8	1.0	1.8	1.4
95% CI	1.0	(0.5-2.2)	(0.9-3.6)	(0.6-3.0)

¹Adjusted by stratification by age (3 groups), gravidity (3 groups), and smoking (2 groups).

REFERENCES

COLE, P., The evolving case-control study. *J. chron. Dis.*, **32**, 15-27 (1979).

GART, J.J., The comparison of proportions: a review of significance tests, confidence intervals, and adjustments for stratification. *Rev. int. stat. Inst.*, **39**, 148-169 (1972).

MANTEL, N., Chi-Square tests with one degree of freedom; extensions of the Mantel-Haenszel procedure. *J. Amer. stat. Ass.*, **58**, 699-700 (1963).

MCGOWAN, L., PARENT, L., LEDNAR, W., and NORRIS, H.J., The woman at risk for developing ovarian cancer. *Gyn. Oncol.*, **7**, 325-344 (1979).

SILVERMAN, D.T., HOOVER, R., SWANSON, G.M., and HARTGE, P., The prevalence of coffee drinking among hospital and population controls. In: *Workshop on the epidemiology of pancreatic cancer*, National Pancreatic Cancer Project, Bethesda (1982).

TRICHOPOULOS, D., PAPAPOSTOULOU, M., and POLYCHRONOPOULOU, A., Coffee and ovarian cancer. *Int. J. Cancer*, **28**, 691-693 (1981).